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(54) **TISSUE CONDUCTION COMMUNICATION (TCC) TRANSMISSION**(71) Applicant: **Medtronic, Inc.**, Minneapolis, MN (US)(72) Inventors: **James K. Carney**, Roseville, MN (US); **Joseph Ballis**, Shoreview, MN (US); **James D. Reinke**, Maple Grove, MN (US); **Can Cinbis**, Salt Lake City, UT (US); **Kevin P. Kuehn**, Shoreview, MN (US); **Mark A. Griebel**, New Brighton, MN (US)(73) Assignee: **Medtronic, Inc.**, Minneapolis, MN (US)

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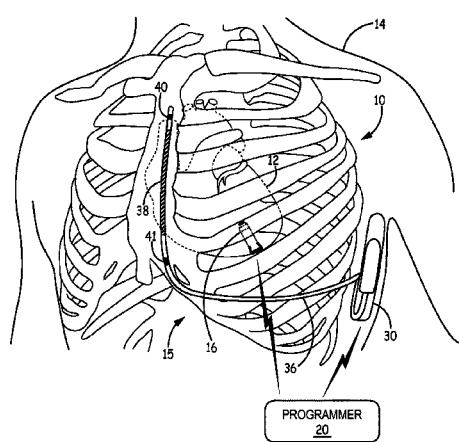
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(57) **ABSTRACT**

An implantable cardioverter defibrillator (ICD) configured to transmit a tissue conduction communication (TCC) signal includes a TCC transmitter module configured to generate the TCC signal and transmit the TCC signal via a plurality of electrodes. The TCC signal comprises a biphasic signal having an amplitude and a frequency, wherein at least one of the amplitude and the frequency are configured to avoid stimulation of tissue of the patient. The TCC transmitter module comprises protection circuitry coupled between a current source and the plurality of electrodes, wherein the protection circuitry is configured to protect the signal generator from an external anti-tachyarrhythmia shock delivered to the patient.

20 Claims, 17 Drawing Sheets

